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ABSTRACT

This paper reviews research on the impact of Professional Development Schools (PDSs) on K-12 students, preservice teachers, inservice teachers, university faculty, school reform, and research. Section 1 examines what the research says about the impact of PDSs on these groups, using data from the ERIC database, and it discusses external support for PDSs. Section 2 examines the financing of PDSs, noting that beyond startup, PDS partnership costs for teacher education and school renewal initiatives remain within existing levels of university and school district allocations. Section 3 examines partnerships in education, noting that the PDS model holds tremendous potential for the improvement of schools and universities as institutions as well as for impacting individual constituents. This section also discusses: documenting the impact of PDSs, criticisms of the PDS model, and recognizing PDSs as a type of school organization. Section 4 concludes that the PDS model can improve teacher preparation, professional development, K-12 student learning, schools and universities, and research on teaching and learning. It notes that the success of PDSs relies on developing a culture of learning that transcends individual and organizational boundaries. This culture must be developed over time. It cannot be imposed or mandated. Contains 131 references. (SM)

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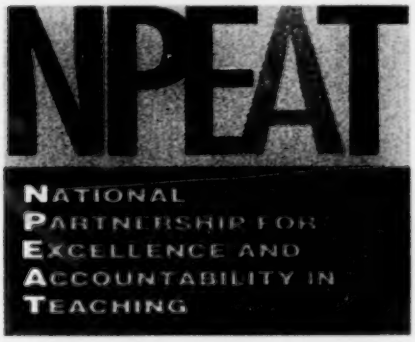

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THE EFFECTS OF PROFESSIONAL DEVELOPMENT SCHOOLS

A Literature Review

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Introduction

The professional development school is a component of the reform movement in teacher education and school change designed to develop a new vision of teacher education, teacher professionalism, and schools as professional learning communities. The name and the concept for the professional development school (PDS) was first developed in 1986 by the Holmes Group, a consortium of nearly 100 United States research universities involved with teacher preparation. (The Holmes Group has since evolved into the more inclusive Holmes Partnership.)

Professional development schools are school-university partnerships modeled after teaching hospitals (Flexner, 1910; Levine, 1992). PDSs are created to: 1) prepare new teachers; 2) support the

professional development of classroom teachers, university faculty, and administrators; and 3) provide a clinical setting for research on teaching and learning (Holmes, 1990; Sedlak, 1987; Teitel, 1996). The literature also cites improvement of education for K-12 students (Abdal-Haqq, 1998; Goodlad, 1994; Kimball, et. al, 1995) and support of school reform at both the school and university level (Goodlad, 1990) as goals of PDS relationships. PDSs are multifaceted in order to address systematically the multiple requirements of a developing profession.

The professional development school model was developed as a school-university collaborative teacher education reform initiative partially in reaction to the crisis rhetoric of educational reports in the 1980s (Berliner & Biddle, 1996). In 1986, the Carnegie Forum on Education and the Economy published their report, *A Nation Prepared: Teachers for the 21st Century*, and the Holmes Group published their report, *Tomorrow's Teachers*. These reports launched the reform efforts in teaching to develop "infinitely skilled teachers" (Cremin, 1965), meaning teachers:

> who understand learning as well as teaching, who can address students' needs as well as the demands of their disciplines, and who can create bridges between students' experiences and curriculum goals (Darling-Hammond, 1994, p.5).

"Infinitely skilled teachers" cannot be created in undergraduate or even one or two year graduate programs. Rather, the foundation for becoming an "infinitely skilled" teacher can be set in graduate and undergraduate programs; prospective teachers can be equipped with the skills to become life-long learners.

Teachers and teacher educators in PDSs have identified several professional characteristics required to become "infinitely skilled teachers." These professional characteristics include the capacity to be: reflective about their practice; collaborative and willing to learn from others to improve their practice; inquisitive; and involved in continuous inquiry about the effects of their teaching practice. The PDS advocacy literature says that PDS teacher education programs are designed to promote and develop these characteristics in prospective teachers.

PDSs have grown rapidly in number since the publication of the design principles in the Holmes Group's second report *Tomorrow's Schools* (1990). Because PDSs are complex, interagency agreements, they vary greatly due to contextual factors and are highly susceptible to individual personalities and local contexts. There were 600 professional development schools in the United States in 1997 (Abdal-Haqq, 1998). Legislation such as the TEACH Act, (Teacher Excellence in America Challenge Act of 1997, S. 1169) that would "provide competitive grants for school-university partnerships that launch professional development schools to improve teacher preparation, induction, and professional development" (Darling-Hammond, 1997, p.38), is expected to rapidly increase the number of professional development schools. Abdal-Haqq (1998) mentions states that have encouraged PDSs:

> A number of states have provided financial resources to support development and implementation of professional development schools, often as part of broader

> education initiatives: Texas (Warner, 1996); Maryland (Maryland Higher Education Commission, 1995); Massachusetts (Teitel, 1993); and South Carolina (Gottesman, Graham, & Nogy, 1993). Minnesota passed legislation to incorporate a mandatory 1-year residency in a PDS into its restructured teacher licensure program (Minnesota State Board of Teaching, 1994). Foundation supporters include AT&T (Abdal-Haqq, in press), Exxon (Levine, 1988), Ford (Anderson, 1993), and Benedum (Hoffman, Reed, & Rosenbluth, 1997) foundations (p.3).

However, there is an apparent lack of research on the long-term effects of teacher preparation in PDSs:

> The literature thus far has not demonstrated a link between the establishment of Professional Development School partnerships in teacher education and the development of the kind of teaching by prospective teachers that will lead to the education of all students to high academic standards (Zeichner & Miller, 1997, p.29).

This paper is a review of the research literature on the impact of PDSs on K-12 students, pre-service teachers, in-service teachers, university faculty, school reform, and research on teaching and learning. A review of the critiques of the PDS model and the ways it has been implemented follows the review of the impact research. Included in the critique section are the obstacles to implementation. Finally, a summary will review the literature to offer cautions and suggestions with reference to the National Council for Accreditation of Teacher Education (NCATE) PDS standards.

The Literature

There are several comprehensive literature reviews on PDSs (Abdal-Haqq, 1998; Book, 1996; Teitel, 1996; Valli, Cooper, & Frankes, 1997). However, this literature consists primarily of program descriptions; thus the literature reviews emphasize the intended goals and purposes of PDSs. This paper will focus on the early effects of the intended goals by reviewing the available research on the impact of the PDS on the various constituents involved.

This review relies primarily on the literature available through ERIC. A few not-yet-published documents were also reviewed, particularly in the critique and summary sections. The focus of this review is the impact of the PDS model on the various constituents involved. Most of the research is on the effects on pre-service and in-service teachers. There is some research on the impact on university faculty, the school and university programs, teacher attrition, and financing PDSs. There is one piece that is specifically on the impact on student achievement, although other reports embed impact on students in the reports.

Lastly, this review will briefly discuss the school reform literature because of its implications

for examining the PDS as a model of school organization with the potential to impact pre-service, novice, and experienced teacher learning, student learning and achievement, and school design and development and the need to re-imagine and improve schools as workplaces for teachers and students (Holmes Group, 1986).

Impact on Preservice Teachers

Teacher education in a professional development school is distinguished from more traditional teacher preparation by several common practices. One goal is to develop coherence between the theory of the university and the practice of the school-based studies:

> PDS internships, like those of other professions, would offer opportunities to observe, practice, debrief, and be counseled, as well as to consult, attend seminars, and reflect with colleagues. This combination would help interns acquire a broad set of understandings and abilities rather than a formulaic set of behaviors that ultimately prove inadequate (Darling-Hammond, 1994, p. 9).

The traditional model for the preparation of teachers as technicians has been that of an apprenticeship. Teacher candidates are paired with a single mentor teacher for 6-12 weeks of observation and imitation of practice. In the PDS, the teacher candidate is involved in an internship for the "thoughtful analysis of practice" (Zeichner & Miller, 1997). Ideally in an internship, the teacher candidate is placed with a cohort of interns into the care and guidance of a team of experienced professionals, both school-based and university-based. Seminars, discussion groups, demonstration lessons, team teaching, and joint planning are common features of PDS internships. Thus, from the onset of their education as teachers, PDSs offer pre-service candidates the opportunity to join multiple professional communities, thereby providing an alternative expectation that contrasts with the conventional model of teacher isolation and privatized practice. Because the norms of professional collaboration and reflective dialogue are operationalized in PDSs, pre-service candidates can experience school as a professional community.

The school based studies (SBS) have a strong impact on the development of novice teachers (Shen, 1995); however, the effects are not uniform. Some studies have shown that teacher candidates become rigid, bureaucratic, authoritarian, impersonal, and custodial following their SBS (Copeland, 1980; Glassberg & Sprinthall, 1980; Jones, 1982; Emans, 1983; Packard, 1988), while others found that teacher candidates become more confident and flexible (Benton & Richardson, 1983; Tabachnick & Zeichner, 1984; Telese, 1996; Zeichner & Grant, 1981). Zeichner argues that "the failure of studies to attend to the complex, dynamic, and multidimensional reality of student teaching -- the ecology of student teaching -- is a major reason for the unsatisfactory state of our knowledge base related to the influence of student teaching on the process of learning to teach" (Shen, 1995, p.1). The PDS model pays close attention to the context and content of the SBS for the preparation of

teacher candidates.

A few large-scale surveys have been conducted to follow graduates of PDS teacher preparation programs. Whitford, Ruscoe, and Fickel (in press) found that graduates of PDS programs felt better prepared to develop curriculum that builds on students' characteristics, teach for higher order thinking, and assess students in a multiple ways. They also found that principles rated graduates of PDSs as better prepared than graduates of other programs.

Abdal-Haqq (1998) cites the findings of a similar follow-up study of the graduates of another PDS teacher preparation program:

> [The] results of a 5-year study of program graduates show that almost 98% of MCTP graduates have remained in the classroom, compared to a national average of less that 60% (The Model Clinical Teaching Program, n.d.) (p.17).

A couple of comparison studies of teacher education graduates from the same university, some of whom were in a PDS program and some of whom were in traditional student teaching placements, found that PDS graduates were rated as better prepared by principals. Also, through blind portfolio reviews, PDS graduates were rated as more positive about inclusion of children with disabilities in mainstream classrooms. They were in greater agreement with three of the six Holmes Group PDS design principles: #1, teaching and learning for understanding; #2, creating a learning community; and #5, thoughtful long-term inquiry into teaching and learning (Long & Morrow, 1995; Woloszyk, & Hill, 1994).

In the literature (Book, 1996; Darling-Hammond, 1994; Levine, 1997; Trachtman, 1996), there are 5 distinct capacities that are repeatedly named as expected outcomes for teacher candidates prepared in PDSs. These capacities distinguish the preparation of teachers as professionals over and above the traditional goals of content mastery, classroom discipline, and organizational skills required of the teacher-as-technician. Teacher candidates prepared as professionals in PDSs are expected to demonstrate ability to:

- be reflective about their practice in order to evaluate and refine practice
- work collaboratively
- inquire into their practice systematically thereby contributing to the knowledge base about teaching
- create "learner-centered" classrooms
- be aware of issues of diversity and teach for equity.

The effects of preparing teachers in PDSs have been researched primarily through case studies and surveys within programs and have emphasized the characteristics listed above -- reflection, collegiality, inquiry, learner-centered practices, and teaching for diversity. Research has shown that

PDS programs at Emporia State University in Kansas (Long & Morrow, 1995), Trinity University in Texas (Van Zandt, 1996), Western Michigan University (Woloszyk & Hill, 1994), and Wheelock College in Massachusetts (Cambone, Zambone, & Suarez, 1996) do increase the capacity of prospective teachers to be reflective. PDS graduates are considered to be collegial team players (Shen, 1995; Yopp, Guillaume, & Savage, 1994). Many PDS programs acknowledge that they have not been able to be involved in inquiry projects to the extent that they would like (Trachtman, 1996) because of financial, time, and recognition constraints (Trachtman, 1996; Zeichner & Miller, 1997).

The actual teaching practices of PDS graduates have not been systematically studied to learn whether graduates exhibit teaching for understanding and diversity practices. At the University of Wisconsin at Madison, a case study of a PDS intern documented change in the teaching practices of the intern towards "a more learner-centered and learning-centered kind of teaching" (Zeichner & Miller, 1997, p.25). Two PDS programs were specifically designed to prepare teachers for teaching in multicultural classrooms and classrooms with diverse learners. The Learning to Teach Diverse Populations (LTDP) program at Texas A & M and the Teachers of Students with Special Needs (TSSN) program at Wheelock College have documented positive results in preparing teachers to teach diverse learners (Long & Morrow, 1995; Stallings, 1991).

Abdal-Haqq, the coordinator of the ERIC Clinical Schools Clearinghouse, has been responsible for collecting data on PDSs for over five years. She reached similar conclusions in her review of the literature (1998) on the impact of internships in PDSs on the teaching practices of preservice teachers:

> The literature conveys the general impression that preservice teachers whose practicum experiences take place in PDS settings, in contrast to traditional student teaching placements:
>
> 1. Utilize more varied pedagogical methods and practice (Miller & O'Shea, 1994; Zeichner, 1992)
> 2. Are more reflective (Hayes & Wetherill, 1996)
> 3. Enter teaching with more knowledge of school routines and activities beyond the classroom (Trachtman, 1996)
> 4. Feel more confidence in their knowledge and skill as professionals and subsequently experiences less "culture shock" when they become practicing teachers (Book, 1996; Tusin, 1995)
> 5. Feel themselves to be better equipped to instruct ethnically and linguistically diverse student populations and are more likely to seek employment in inner-city schools when their practicums stress work in urban areas (Abdal-Haqq, in press; Arends & Winitzky, 1996)
> 6. Have lower attrition rates during the first few years of teaching and are more likely to "hit the ground running" when they become employed (Hayes & Wetherill, 1996; The Model Clinical Teaching Program, n.d.)

(p. 15).

More recently, Fleener (1999) compared the attrition rates of elementary education graduates trained in PDS programs with those of graduates trained in traditional programs at three universities with large teacher education programs. Fleener found that the PDS sample left teaching at significantly lower rates than their traditionally trained counterparts.

Because PDSs are relatively new in the field of teacher education and because the programs are diverse and idiosyncratic, research on their effects is limited and for the most part particular to specific programs.

Impact on Experienced Teacher

Professional development schools as a reform effort are designed, in part, to

promote professional development for teachers. The intent is that the professional development will lead to changes in teaching practices and improve educational experiences for students. In theory, the PDS model promotes teacher change primarily in two ways: (1) through changes in the roles that teachers assume in the new school/university partnerships, especially leadership roles and (2) through a change in the school culture to emphasize learning-centered practices which include teachers understanding themselves as life-long learners.

These types of change can be categorized as "normative re-educative" (Chin & Benne, 1969), which "they focus on providing autonomy for and cultivating growth in the persons who make up the system, and on increasing the problem-solving capabilities of the system" (Richardson & Placier, in press, p.2). These change strategies also shift the power dynamic from the need for external experts to act upon teachers, as in the "empirical-rational" tradition (Chin & Beene, 1969), to empowering teachers to build upon their own knowledge and experience. The belief is that through critical dialogue with other teachers and university faculty, teachers will be able to confront their values, assumptions, and orientations, which, through "mutual adaptation," could result in dramatic change in teaching practices (Gallagher, Goudvis and Pearson, 1988, cited in Richardson & Placier, in press). Research and documentation of these types of changes rely heavily on phenomenological and hermeneutic studies of how individuals make sense of their experiences.

In the research literature, there are many references to teacher learning in general although there are only a few studies that have systematically examined what types of teacher learning are occurring. In many of the more general descriptions of teacher learning, it is assumed that change in teacher roles and organizational structures will lead to change in teaching practices. Frequently, K-12 teachers in PDSs assume the roles of mentor teacher, university clinical faculty, peer supervisor, team collaborator, and/or researcher. In one study teachers created three new roles as a result of participation in a school/university collaboration: "teacher-as-learner, teacher-as-collaborator, and teacher-as-social activist" (Powell & McGowan, 1995).

In two significant studies, the quality and nature of teacher learning were closely examined. Both studies involved inservice teachers who were working as mentor teachers in the PDS and simultaneously were participating in on-site seminars led by university faculty as part of a master's degree program. Rodger and Tiffany (1997) worked with 17 mentor teachers in 10 PDSs in rural Vermont for a full school year as part of an MAT program. All of the mentor teachers were required to participate in a weekly reflective teaching seminar, which included announcements, a general check-in, a debriefing by the mentor teacher who taught the intern seminar that week. In the second hour of the seminar, one of the mentors led a discussion of a case study focused on topics such as observation, supervision, and giving effective feedback.

A second optional seminar for credit focused more rigorously on using qualitative research methods in teaching practices. The data for the study consisted of fieldnotes, interviews in February with four of the teachers, and interviews with some of the teachers from two years earlier. The fieldnotes and transcripts were coded for emergent themes. The teachers responded that they felt their thinking was more rigorous because the seminar forced them to intellectualize their beliefs; they were pushed to clarify their assumptions during the discussions. For example, one teacher demonstrated a change in her assumption about the locus of control in a classroom; she changed her understanding of the purpose of teaching from "making" students reflect to "helping" students reflect. The teachers felt they were more reflective about their practice and they began to question and challenge their practices and assumptions, even outside of the seminar.

The researchers identified six ways in which the teachers reframed their experiences as a result of participating in the seminars: (1) developmentally, they saw the entire K-12 span; (2) curricularly, they saw the progression across the grades; (3) comparatively, they saw their own experience in comparison to others; (4) objectively, they felt they could get distance from their own situations; (5) theoretically, they were able to filter, name, and organize the experiences; and (6) they saw themselves as part of a professional group larger than themselves.

Crow and his colleagues (1996) conducted a study using interviews and questionnaires. Data were collected from 25 teachers involved in a two-year cooperative master's of education program. Four dominant themes emerged from the data around teachers as sustained change agents. Teachers responded that they had changed their perceptions and beliefs about teaching and themselves as teachers to include a sense of 'voice' and confidence. One teacher stated:

> I've become reflective about my 'teacher as learner' role. In fact, I'm constantly redefining my role. Previously...I would defer to so called experts to interpret what my worth might be. Now, I am more cognizant of expertise, I have the ability to interpret what is appropriate . . . (xxiii) (p.9).

The second area of change teachers mentioned was regarding their classroom practice,

particularly the inclusion of cooperative learning, portfolio assessment, and increased student choice in the curriculum. Third, there were three ways in which they saw themselves involved in school level change: (1) in leadership and problem solving roles; (2) as researchers in school curriculum and organization; and (3) in building a culture of collaboration. The fourth theme was teachers as builders and participants in a community of learners through inquiry projects and student-centered practices modeled in the master's seminars.

In a review of the literature on the impact of PDSs on teacher learning, Abdal-Haqq (1998) concluded that:

> Overall, the literature indicates that significant numbers of practicing teachers benefit from their involvement in PDS programming. Teachers report:
>
> 1. More willingness to take instructional risks and experiment with new content and approaches (Houston Consortium, 1996)
> 2. Being intellectually stimulated and energized by exposure to new ideas; opportunities to conduct school-based research; and collegial interaction with peers, preservice teachers, and university faculty (Trachtman, 1996)
> 3. Growth from engaging in nontraditional roles (Collinson et al., 1994; Wiseman & Cooner, 1996)
> 4. Less isolation (Ariav & Clinard, 1996; Barba et al., 1993)
> 5. Less powerlessness (Crow et al., 1996; Neufeld & McGowan, 1993)
> 6. Improvements in their classroom practice (Crow et. al., 1996; Houson Consortium, 1996)
> 7. A greater feeling of professionalism (Morris & Nunnery, 1993) (p.10).

The theme of teacher empowerment is persistent across several studies. Abdal-Haqq cites it in number five above. Rodger and Tiffany (1997) found that teachers felt empowered by the way program collaborators included them in the planning of the partnership, assumed equal decision making power, listened and deferred to them as experts, and treated them with respect.

Morris and Nunnery (1994) conducted a case study of teacher empowerment in a first-year professional development school using a 38-item questionnaire based on a teacher empowerment inventory. Thirty-two teachers were surveyed and the results were compared with 82 teachers in a control group. Nine teachers and one administrator were interviewed, documents were reviewed, and observations were conducted. They found that three components of the PDS influenced teachers' perceptions of empowerment along four dimensions: (1) mentoring self-efficacy; (2) teaching self-efficacy; (3) professional knowledge; and 4) collegiality. The components are: (1) supervision of practice teachers; (2) school improvement planning; and (3) clinical professor training.

The increased use of learning-centered teaching practices by teachers in their classrooms and by teachers as participants in learning communities were also themes that extended across several research reports. Abdal-Haqq cites studies related to learning-centered classroom practices above. Rogers and Tiffany (1997) and Crow and colleagues (1996) both cited teachers regarding changes they had made to their teaching practices in the classroom. Mantle-Bromley (1998) and Raymond and Leinenback (1996) give examples of cases where teachers sought out and worked closely with university faculty around issues of eliciting more student preparation and teaching for success in a heterogeneous math class. In both of these cases, the teachers were working as learners themselves in order to help improve the learning opportunities for their students.

Impact on K-12 Students

Several authors caution that restructuring schools and teaching does not necessarily lead to improved student learning (Abdal-Haqq, 1998; Dempsey, 1997; Kimball, et. al., 1995) especially for marginalized students (Lipman, 1997; Meyers, 1996):

> the goal of improving students' learning experiences must take precedence over other aspects of [PDS] partnership function,...[t]he means to effective partnership can easily become ends in themselves. For example, the energy for change in schools may become focused only on improving working condition for teachers, establishing more collaborative decision making structures, or creating more flexible schedules, all of which can be a means to an end of learning but cannot be ends in themselves. Administrative practice can change without passing advantage to the classroom (Kimball et. al., 1995, p.24).

Kimball and his colleagues continue on, however, to caution that we must also simultaneously question what is meant by student success. Increases in standardized test scores or 'more of the same' is not the goal of PDSs (Trachtman, 1996). Rather, teaching for understanding such that all students can be successful is a goal of the PDS movement (Darling-Hammond, 1994; Holmes, 1990; Levine, 1992). This change in the interpretation of student success will require new methods of assessment of student learning.

Even so, there is some research evidence that student achievement test scores have increased in PDSs. Most reports about student achievement improvements have been written in the "fugitive" literature -- newsletters, foundational reports, and internal organizational reports -- with limited distribution, so this report relies heavily on Abdal-Haqq's review of the literature for the following materials on student achievement scores.

At Texas A&M University, the PDS collaborative redesigned the university language arts methods course. The new course requirements for the preservice students included a weekly one

hour "reading buddy" time in the schools with a small group of elementary students. The inservice teacher participation in the program went up to 100% after the first semester and spread to other school sites. Writing scores on the state achievement test increased from a 69% pass rate to 82% after the first year and 92% after the second year of the reading buddy program was implemented (Wiseman & Cooner,1996, as cited in Abdal-Haqq, 1998).

At the Houston Consortium for Professional Development and Technology Centers at the University of Houston College of Education an internal report written by Houston, et. al. (1995) reported significant increases in student achievement scores. Math scores on state achievement tests increased in all of the 16 consortium PDSs and reading scores increased in 14 of 16 within 2 years of the implementation of the PDS. These dramatic results were linked to the one-on-one and small-group tutoring by preservice teachers who were required to do so as part of the field-based methods course work at the university. This is similar to the Wiseman and Cooner study. These results can not be assumed to be causal but, rather, indicated correlated variables. Consortium schools activities related to the PDS partnership that may have contributed to the increases in student achievement include reduced student-adult ratios, alignment of curriculum with test objectives, and, at the same time, collaborative work between inservice teachers and university personnel to solve classroom and instructional problems (Houston, et. al., 1995, as cited in Abdal-Haqq, 1998). In another state:

> math scores at one urban elementary PDS rose 45% over 4 years. The same report also describes an urban high school PDS in which fewer than 30% of ninth graders generally survive into the 10th grade. One significant group of these ninth graders worked with a team of ninth-grade teachers actively supported by university faculty, with the result that the persistence rate increased threefold during 1994 (Judge, Carriedo, & Johnson, 1995, as cited in Abdal-Haqq, 1998, p.41).

In West Virginia, the Benedum Foundation supported collaboratives between West Virginia University and 13 local K-12 schools. In a draft of a study of five of the schools, it was found that:

> in all cases either the PDS is outperforming the WV [West Virginia] mean in a direct comparison or is improving at an accelerated rate relative to the state. In some schools both occur (Webb-Dempsey, n.d., p.4, cited in Abdal-Haqq, 1998, p40).

The impact of PDS partnerships on student learning has been documented in ways other than through the use of student achievement tests. In pursuing the development of learning-centered teaching practices, schools have moved to block scheduling (Trachtman, 1996; Web-Dempsey,

1997). In an extensive survey study of 28 peer-nominated exemplary PDS sites, Trachtman (1996) found that teachers are moving towards constructivist classrooms in which the teacher creates opportunities for students to construct their own knowledge. Several sites described student-centered learning as the use of 'inquiry-based projects' in which students learn and develop academic skills while pursuing an essential or student-generated question for research. The introduction of or increased use of *Writing Process*, cooperative learning, and small group work teaching strategies were mentioned often at many of the sites. With an emphasis on the belief that all children can learn, some of the PDS sites responded that children's unique learning styles were examined, students were grouped heterogeneously, and children with special needs were included in the mainstream classrooms. Multi-age grouping in the elementary schools allowed teachers to work with the same students over extended time periods. Although some sites noted significant improvements in students' standardized achievement test scores, over 70% of the sites reported using multiple approaches to student assessment and the majority of the sites reported statewide testing mandates as a obstacle.

One study examined the effects on student learning of transforming professional development schools to focus on national content standards (Devlin-Scherer, et. al., 1997). A university faculty member worked with a team of three elementary teachers for the first year and then expanded the efforts to the entire elementary school the second year. The goal was to introduce and integrate problem-solving instruction based on the NCTM (National Council of Teachers of Mathematics) standards into math classes in which teachers had previously used textbook-based instruction exclusively. The results showed that the 480 students learned the seven selected problem-solving strategies. However, scores on the Stanford Achievement Test did not increase significantly in comparison with the matched pairs control group at another school. In defending these results, the authors cited Wood and Sellers (1996) who found "that students needed to learn mathematics in reform-based classrooms for two years before significant differences in student achievement in mathematics could be observed" (p. 3). In an interview study with the students, using a Likert-scale to indicate their perceived competence in problem solving approaches, all of the students made pre-post test gains, and importantly, the lowest achieving students made the greatest gains.

External Support

PDSs are becoming the reform of choice with the extensive promises and early successes for change in schooling and teacher preparation. PDSs are, for the most part, politically neutral and often don't require extensive additional financial resources. As a result, there has been a rapid increase in the number of PDSs that have frequently been supported by foundations and legislation. From the beginning, with the Holmes Group report, in 1990 to 1997, PDSs have grown in number to over 600 across the nation (Abdal-Haqq, 1998). However, the extent to which partnerships or school sites called PDSs actually reflect the NCATE definition of PDS or embody the characteristics described in

this report is unknown. In Maryland the Higher Education Commission required that all teachers prepared in the state of Maryland complete an internship in a PDS setting (1995). In Minnesota, the State Board of Teaching required a one-year residency in a PDS in their restructured teacher licensure program (1994). Kansas (Kleinhammer-Tramill, Keyy, & Gallagher, 1996), Massachusetts (Teitel, 1993), North Carolina, South Carolina (Gottesman, Graham & Nogy, 1993), and Texas (Warner, 1996) have all passed legislation that included funding to support the development of PDSs (Darling-Hammond, 1997).[1]

Several foundations have also supported the development of PDSs, especially in the years right after the Holmes Group report (1990). AT&T (Abdal-Haqq, in press), Benendum (Hoffman, Reed, & Rosenbluth, 1997), Exxon (Levine, 1988), Ford (Anderson, 1993) have all provided funding to support the development of PDSs. In 1994 the United States Department of Education Office (USDOE) of Educational Research Improvement provided funds to the School of Education and Professional Studies at Central Connecticut State University to improve student achievement through school-based reform and to enhance the preparation of teachers who work in urban schools primarily through PDSs using performance standards of the National Council of Teachers of Mathematics (NCTM), the National Council of Teachers of English (NCTE), and the National Board of Professional Teaching Standards (NBPTS). The USDOE also supported the Kansas initiatives.

There are reports on the impact of two of the state-wide initiatives to promote PDSs. Kleinhammer, Keyy, and Gallagher (1996) conducted interviews with 53 administrators and teaching faculty at eight of the Kansas colleges and universities who received subgrants from the Kansas project partnership from the USDOE. The partnership was designed to improve teacher education related to Quality Performance Accreditation. The researchers report, "This represented a shift toward empowerment of local communities and schools and toward local accountability for results in terms of student performance" (p.24). The goals of the partnerships included the preparation of general education personnel to teach students with diverse learning needs and to enhance university partnerships with schools. The interviewees reported that, although most of the efforts began with isolated faculty activities, the projects are broadening across departments and curricular issues. Only university faculty were interviewed and the degree to which K-12 teachers are truly partners in the work varies across sites. In some of the PDS

> partnerships appear to reflect a dynamic, reciprocal relationship between the teacher education program and participating schools. In others, PDSs are viewed as little more than commonly used sites in which some students participate for field experiences or schools which need intervention. Issues such as the presence of faculty on-site in the schools on a regular basis and clinical instructor roles which involve simultaneous participation in the school and involvement as more than an adjunct faculty member in the teacher education program provide evidence of reciprocal

learning by faculty and school personnel (p 21).

The state can require that certain structures be implemented by organizations involved in PDSs. However, it can not mandate the long term, trusting relationships that are necessary for interagency collaborations like PDSs. External funders can support and enable the development of relationships, but this is often difficult because the educators' time table is much slower than the legislators' who want to see change before the next election cycle.

In Massachusetts, the State Department of Education (DOE) took a very active, interventionist role in the early development of PDSs (Teitel, 1995). The state DOE assumed a centralized, high-intervention, top-down approach to bringing six middle schools and four universities together to improve middle schools and reform middle school teacher preparation. The DOE selected and solicited schools based on their history with reform grants from the DOE. In the first year, members of the schools and universities developed relationships and proposals for two years of funding to implement PDSs. The DOE required and monitored collaboration between the schools and universities in the beginning. The DOE intervened around issues of commitment or readiness of partners; facilitated communication, increased awareness of what was possible by bringing organizational representatives together, promoted cooperation, and provided additional resources to support the development of the partnerships. In this case the state department took an active role in the start-up and then provided continued support over several years with significant results.

Financing

Clark (1998) points out that despite the wide variance in the funding of teacher education programs, the National Network of Educational Renewal, which represents school-university partnerships in 14 states, reports that beyond start-up, PDS partnership costs for teacher education and school renewal initiatives remain within existing levels of university and school district allocations. As assessed by Clark (1998), the typical start-up cost for a PDS is $50,000, with funds distributed as follows:

Project Coordination:	$10,000
Planning:	21,500
Technology:	10,000
Furnishings:	3,000
Legal Reviews	500
Space	5,000.

Because universities are the primary recipients of PDS grants, their fiscal contribution to the

partnership usually exceeds that of their school district partner.

Clark (1998) identifies four approaches to funding used by successful PDS partnerships: 1) the elimination of "old" or traditional programs and the adoption of new ones (e.g., University of Louisville), 2) a joint agreement to share funding, K-16 (e.g., University of Southern Maine), 3) the acquisition of external funding (e.g., West Virginia University), and 4) entrepreneurial- ism, which combines the former approaches (e.g., University of Colorado).

Partnerships

The professional development school design principles laid out by the Holmes Group in their 1990 report, *Tomorrow's Schools*, are comprehensive and ambitious. One aspect can not be changed without affecting all of the constituents for better or worse. Building PDSs that live up to all of the goals of the design principles is difficult, long-term work. Many roadblocks have been identified and will be described in this section. The PDS model holds tremendous potential for the improvement of schools and universities as institutions as well as for impacting the individual constituents mentioned in the previous sections (Goodlad, 1990; Holmes, 1990).

Williams (1996) found in a study of the 15 PDSs connected with Indiana State University, a shift in several of the key components of the school/university partnerships after the implementation of the PDSs:

Shift in Key Components of Old Partnerships to New Partnerships

Old Partnerships	Key Component	New Partnerships
Rational bonds/ linear standardization	Purpose	Cultural bonds of shared mission roles and and sense of community
Hierarchical: top-down communication	Structure	Flat: self governance
Management and labor specialization	Personnel life-long learner	All staff involved in total enterprise
What needs to be known is transmitted to learner	Knowledge	What needs to be known is constructed by learner engaged in study

Table 1 (Williams, 1996, p. 176)

The PDS collaborative created new structures and roles typical of many PDS partnerships. These included: a PDS steering committee; a site-based planning committee of teachers, parents, students, community patrons, and university personnel; study teams of teachers across and within sites; and faculty initiated professional development. New roles were developed. Teachers saw

themselves as "stewards" of education, responsible for an enhanced learning environment school-wide. University faculty were given the opportunity to become involved in and lead "service scholarship" Boyer (1990). Participants involved in the PDS efforts, along with the Indiana 2000 Schools project, worked towards ambitious restructuring around learner centered programs. As a result, over 70% of the early field experiences of preservice teachers took place in PDS sites; 26 collaborative inquiry proposals were submitted by 96 inservice teachers and 34 university faulty members. The impact of the PDS can be extensive and affect all of the constituencies involved in K-12 and teacher education.

Kochan (1996) found four primary areas of benefits resulting from PDSs as perceived by university faculty. She surveyed 58 faculty at a conference sponsored by the Holmes Group Initiative. Out of 104 responses regarding the benefits of PDSs, nearly 40% mentioned improved teaching and learning environments, 30% mentioned improved relationships, 20% cited personal and professional development opportunities, and 10% listed enhanced research opportunities.

Several authors have reported on the roadblocks or difficulties in developing successful PDS partnerships between universities and schools. Structural, human, political, and symbolic problems have been identified by Bolman and Deal (1993), cited in Kochan, (1996). Whitford & Metcalf-Turner (1999) break it down into issues of equity, sustainability, and comprehensiveness. Cultural differences between the university and school settings (Lieberman and Miller, 1992; Sirotnick, 1991; Whitford & Metcalf-Turner, 1999) are often mentioned, as are time constraints (Sirotnick, 1991;Whitford & Metcalf-Turner, 1999), and reward systems at the university (Brookfield, 1995; Sirotnick, 1991; Whitford & Metcalf-Turner, 1999). Sirotnick (1991) has developed one of the most comprehensive lists of the recurring problems with making school-university partnerships work:

> 1) culture clash - norms of time, space, ethic of inquiry versus action, merit system versus egalitarian work 2) intractable school of education misguided reward system outgrowth of misplaced values, status deprivation, and identity crisis 3) sustaining leadership & commitment 4) resources 5) modeling authentic collaboration 6) living with ambiguity -goal-free planning, action, and evaluation to allow activity to direct 7) no quick fix 8) inappropriate process/substance debate 9) avoid over and under structuring 10)leadership and responsibility shared and empowered (as cited in Goodlad, 1993, p.38).

Research on the PDS partnerships and ways to surmount these common roadblocks would be of great value to the PDS movement and to the improvement of teaching and learning.

Documenting the Impact of PDSs

The impact of the PDSs needs to be documented, some have argued, for the survival of the PDS movement (Abdal-Haqq, 1998; Lange, 1993; Stallings & Kowalski, 1990). Berry & Boles assert that there is a need for:

> hard evidence of the benefits to students, prospective teachers, and teachers to gain financial and political support for such ambitious changes in schools and teacher education (1998, p.17).

Sixteen partnerships in the National Network for Educational Renewal (NNER) developed a "compact" for collecting data on the effectiveness of the partnerships (Osguthorpe, 1996). Osguthorpe strongly recommends that the evaluative efforts be collaborative between school and university faculty. Such collaboration can lead to increased levels of trust between the university and school faculty. Others have also found that mutually beneficial or organic interagency collaboration is stronger for maintaining partnerships than is cooperative, short-term or symbiotic collaboration (Schlechty & Whitford, 1988, cited in Whitford & Metcalf-Turner, in press). Osguthorpe also cautions that the evaluations must be internally-initiated, not mandated from above and should be integrated with the need for accountability and refining practices.

Critiques

Theoretically and empirically based critiques of and cautions towards the implementation of the PDS model are emerging. Valli, Cooper, and Frankes, (1997) have conducted a thorough analysis of the PDS literature in terms of how it maps on to the equity agenda originally laid out by the Holmes Group in *Tomorrow's Schools* (1990). They used Cuban's (1988) definitions of *first-order* and *second order* changes to examine the extent to which PDSs have achieved the goals for equity promoted in the advocacy literature. *First-order* changes are intended to make existing organizational goals and structures more efficient and effective and *second-order* changes are aimed at the restructuring of the organization itself. They organized the literature around six themes: teaching and learning, teacher education, professional development, organization and structure, inquiry and research, and collaborative alliances. Overall, they found that the equity agenda was not being addressed directly and intentionally within most PDS sites. Some of the issues of concern were selection of schools as PDS sites and whether the additional support and restructuring resources are distributed equitably among schools. Another issue is access to PDS programs by preservice and inservice teachers. Because in many partnerships, the number of PDS sites is not sufficient for everyone in an institution's teacher preparation programs to be able to participate, who gets to participate and for what reasons or based on what criteria should be looked at closely. Similarly, Abdal-Haqq cautions that,

> If, as a number of authors have noted (Darling-Hammond, 1994; Levine, 1996: Minnesota Sate Board of Teaching, 1994) these institutions are intended to become the sole gateway into the profession, PDSs may simply reinforce existing patterns of power and privilege. The

> well-off and the white will be admitted to the profession in large numbers; the poor and students of color will be underrepresented (1998, p. 66).

In terms of research, there has not been systematic inquiry into equity issues in PDSs. Teaching and learning practices have not addressed culturally relevant practices, but heterogeneous grouping, learner centered practices, and in some schools inclusion of students with special needs have contributed toward the equity agenda. At the organizational level, there is a concern that the labor-intensive work of PDSs is often treated as an add-on to other responsibilities of teachers and university faculty and frequently without time or financial compensation. There are many issues to address in the complex inter-organizational arrangements that characterize PDSs. Studies like that of Valli, Cooper, and Frankes can help practitioners and policy makers to be more aware of the potential pitfalls of the model.

Murrell and Borunda (1998) pick up on the Valli, Cooper, and Frankes (1997) theme of interpreting to what extent PDSs are meeting the equity agenda of the design principals (Holmes Group, 1990). Murrell and Borund focus on the frequent lack of connections between PDSs and community politics, neighborhoods, and social reform efforts. They offer a positive case study of the Wheelock College-Trotter School collaborative in which diversity has been redefined to include academic as well as cultural differences. The collaborative is addressing the equity issues involved with academic diversity.

Another critique of the PDS model draws attention to the need for school-based inquiry and research. Berry and Boles (1998) reviewed the surveys from the 28 peer nominated PDSs involved in the National Council for the Accreditation of Teacher Education (NCATE) standards project looking for evidence of inquiry. Their belief is that with inquiry comes the possibility of accountability for the teaching practices in PDSs. They provide examples of how inquiry can be used **as** teaching and learning, **in** what works best, and **on** the effects of the PDS. They recognize the difficulties that accompany attempts to draw causal relations and to differentiate PDS influence from other simultaneous reform efforts. They also acknowledge the "halo effect" that often accompanies research that is available to the public because of the political nature of schools and universities.

The importance of evaluation of PDS efforts can be found in the history of previous school-university partnerships that promised to contribute research to the profession. Lange (1993) suggests that one of the reasons for the decline of laboratory schools like Dewey's was the unfulfilled promise of research due to lack of adequate priority and visibility of school-based research. Similarly, Portal Schools of 1960s and 70s were short-lived due to "insufficient evaluation and systematic assessment that could document program effectiveness" (Stallings & Kowalski, 1990 cited in Abdal-Haqq, 1998, p.7)

Recognizing PDSs as a Type of School Organization

In reviewing the literature, we glean how PDSs support school restructuring through organizational and role changes. Darling-Hammond explains how PDSs are "a special case of school restructuring," that "simultaneously restructure schools and teacher education programs [and] redefine teaching and learning for all members of the profession and the school community" (1994, p. 1). Yet, there is an absence of research on the PDS as a new type of school organization. Indeed, the PDS as an organizational model remains to be conceptualized. As the school reform literature increasingly finds that organization matters with regard to improved student performance (Lee, Bryk, & Smith, 1993; Lee & Smith, 1994; Lee, Smith, and Croninger, 1995; Lee & Smith, 1996; Newmann & Associates, 1996), it becomes increasingly critical to examine PDSs as new models of school organization in which the work place, pre-service, novice, and experienced teacher learning and practice, and student learning and achievement can be transformed. PDSs embody many of the characteristics the school reform literature identifies as related to higher levels of school and student performance. These characteristics include: a sense of professional community, shared norms and values, focus on student learning, reflective dialogue, deprivatization of practice, faculty cooperation, collaboration, and control over conditions of work (Louis, Kruse, & Marks, 1996; Lee & Smith 1996). The reform literature also describes changes in school structures and faculty roles, such as block scheduling and diffuse teacher roles (Lee, Bryk, & Smith, 1993; Newmann, 1996) which are found in PDSs. An examination of the PDS as a new model of school organization can provide insight into the role context plays in teacher learning and practice, in student learning and achievement, and in school development.

Conclusions

The professional development school model is comprehensive and ambitious. There are many promises made in the advocacy literature. PDSs are expected to improve:

- teacher preparation
- professional development
- K-12 student learning
- schools and universities
- research on teaching and learning.

The research is demonstrating that these promises are attainable. The literature also includes many cautionary tales and a few emerging critiques. One of the keys to reaching the potential of PDSs is to understand that they are long-term, evolving, inter-personal and inter-organizational partnerships that must be supported, especially with time and recognition.

The NCATE PDS standards reflect the developmental nature of PDSs. The standards include

a pre-threshold stage in which trusting relationships are built, a threshold stage in which inter-organizational agreements and commitments are made, and then a set of standards for quality review is advanced (NCATE, 1997). There is some question as to whether these "stages" are hierarchically and invariantly sequential but there is agreement that high quality PDSs have met the indicators of all three stages.

The success of PDSs relies on developing a culture of learning that transcends individual and organizational boundaries. A culture must be developed over time; it can not be imposed or mandated. Although there is legislation that is mandating the development of PDSs, legislation can provide supports for developing the structures of PDSs but the development of a culture must be nurtured; it can not be dictated.

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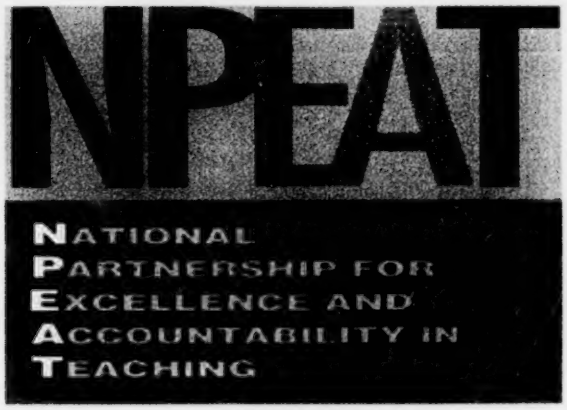

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[1] Sample legislation related to PDSs can be found on the web site of the National Commission for Teaching and America's Future (NCTAF): http://www.tc.columbia.edu/~teachcomm/POL-INFO/polic2-h.htm. Sample PDS partnership agreements can be found at the American Association of Colleges of Teacher Education (AACTE) at www.aacte.org/agrecov.html.

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